

## ZigBee Network Resistance to Jamming Attacks

Sokolov, V.<sup>a</sup>, Skladannyi, P.<sup>a</sup>, Korshun, N.<sup>a</sup>

<sup>a</sup>Borys Grinchenko Kyiv University, Kyiv, Ukraine

### Abstract

The growth in the number of wireless devices, particularly in the context of the Internet of Things, has significant implications for their security. While wireless technologies enable connectivity and convenience, they also introduce new challenges and risks that need to be addressed to ensure the security and privacy of these devices and the data they handle. As the number of ZigBee devices grows, ensuring timely and consistent security updates and patches becomes more difficult, leaving devices exposed to known vulnerabilities. The increased number of ZigBee devices can lead to network congestion, which can potentially be exploited by attackers to launch jamming attacks or manipulate network traffic. In this paper, devices from different manufacturers were compared and one of the best was chosen for the experiments. Then a test layout was prepared with three different types of noise generators. According to the results of the experiment, the values of the number of errors were obtained, which show that about 11% is lost during the transmission of packets. With the directed jamming of a ZigBee network, the number of lost packets can reach 95%, which leads to the inability to use the network for its intended purpose. The type of noise generator and its signal level have little effect on the quality of the jamming.  
© 2023 IEEE.

### Author keywords

interference; Internet of Things; jamming; SDR; software-defined radio; ZigBee

### About this paper

<https://ieeexplore.ieee.org/document/10380360>

**Online ISBN:** 979-835034848-4

**DOI:** [10.1109/UkrMiCo61577.2023.10380360](https://doi.org/10.1109/UkrMiCo61577.2023.10380360)

**EID:** [2-s2.0-85183457098](https://ieeexplore.ieee.org/abstract/document/10380360)

**First Online:** 5 January 2024

**Original language:** English

**Publisher:** IEEE Inc.